What is claimed is:

1. A method of identification of primary events in seismic data, the method comprising:

sorting the data by frequency wherein at least some non-primary events are separated from primary events, wherein a frequency-sorted gather of data results;

attenuating in the frequency-sorted gather amplitudes above a pre-selected base amplitude, wherein attenuated amplitudes result;

applying a coherency filter to the events, wherein coherent events are identified; and

replacing with amplitudes from the coherent events attenuated amplitudes in the frequency-sorted gather corresponding to the coherent events.

2. A method as in claim 1 wherein the attenuating comprises reducing amplitude.

3. A method as in claim 1 wherein the attenuating comprises muting.

4. A method of identification of primary events in seismic data, the method comprising:

sorting the data by frequency wherein at least some non-primary events are separated from primary events, wherein a frequency-sorted gather of data results;

applying a coherency filter to the events, wherein coherent events are identified; and

attenuating in the frequency-sorted gather amplitudes above a pre-selected base amplitude which are not associated with the coherent events, wherein attenuated amplitudes result.

5. A method as in claim 4 wherein the attenuating comprises reducing amplitude.

6. A method as in claim 4 wherein the attenuating comprises muting.

7. A system of identification of primary events in seismic data, the method comprising:

means for sorting the data by frequency wherein at least some non-primary events are separated from primary events, wherein a frequency-sorted gather of data results;

means for attenuating in the frequency-sorted gather amplitudes above a pre-selected base amplitude, wherein attenuated amplitudes result;

means for applying a coherency filter to the events, wherein coherent events are identified; and

means for replacing with amplitudes from the coherent events attenuated amplitudes in the frequency-sorted gather corresponding to the coherent events.

8. A system as in claim 7 wherein the means for attenuating comprises means for reducing amplitudes.

9. A system as in claim 7 wherein the means for attenuating comprises means for muting.

10. A system of identification of primary events in seismic data, the system comprising:

means for sorting the data by frequency wherein at least some non-primary events are separated from primary events, wherein a frequency-sorted gather of data results;

means for applying a coherency filter to the events, wherein coherent events are identified; and

means for attenuating in the frequency-sorted gather amplitudes above a pre-selected base amplitude which are not associated with the coherent events, wherein attenuated amplitudes result.

11. A system as in claim 10 wherein the means for attenuating comprises means for reducing amplitude.

12. A system as in claim 10 wherein the means for attenuating comprises means for muting.

13. A method of identifying primary seismic events in seismic data, the method comprising:

applying a coherency filter to the seismic data;

sorting the seismic data according to an event characteristic having a tendency to separate primary from non-primary events; and

selectively attenuating events in the seismic data, wherein the selectively attenuating is dependant upon the characteristic and the coherency of the events.

14. A method as in claim 13 in which the coherency filter is applied in windows.

15. A method as in claim 13 in which the characteristic comprises amplitude in a limited range of frequencies.

16. A method as in claim 13 in which the attenuation comprises reduction of amplitude.

17. A method as in claim 16 in which the attenuation comprises muting.

18. A method as in claim 17 in which the coherency filter is applied in windows.

19. A system of identifying primary seismic events in seismic data, the method comprising:

means for applying a coherency filter to the seismic data;

means for sorting the data according to an event characteristic having a tendency to separate primary from non-primary events; and

means for selectively attenuating events in the seismic data wherein the means for selectively attenuating is dependant upon the characteristic and the coherency of the events.